

## SUCTION LINE HEAT EXCHANGER FOR CO<sub>2</sub> COOLING SYSTEM

### ABSTRACT OF THE DISCLOSURE

5           A heat exchanger including a suction line for gaseous or two phase  
refrigerant output from an evaporator and a capillary tube carrying cooled  
refrigerant to the evaporator. The suction line includes first and second  
substantially parallel straight cylindrical portions connected in series, with first  
and second portions of the capillary tube in series and helically wound around  
10   the suction line second and first portions, respectively. A valve for bypassing the  
capillary tube is responsive to a selected pressure differential between the  
capillary tube inlet and outlet. A U-shaped portion or accumulator connect the  
suction line first and second portions. An accumulator alternately is between the  
evaporator and the suction line portion wound by the capillary tube, with a phase  
15   separation chamber connected to an accumulator by a vertical pipe. The  
accumulator includes a discharge opening to return the oil to the system.